Appl. No. 10/677, 654
Attorney Docket No.: 2003B096
Amendment dated January 26, 2007
Reply to Office Action of October 26, 2006

Amendments To The Claims:

This listing of claims will replace all prior versions and listing of claims in this application.

Listing of Claims:

1. (Currently Amended) A method of making molecular sieve catalyst particles, the method comprising the steps of:

a) providing a solution or suspension of an aluminum-containing inorganic oxide precursor ~~in a liquid medium~~, wherein at least 6 atom% of the aluminum in the precursor is in a form exhibiting an ^{27}Al NMR peak at 62-63 ppm;

b) combining the solution or suspension of aluminum-containing inorganic oxide precursor with a molecular sieve~~, and optionally other formulating agents,~~ to form a catalyst formulation slurry; and

c) ~~aging the catalyst formulation slurry to generate in said slurry a percentage, or increase in said slurry the existing percentage, of aluminum atoms of the aluminum containing precursor in the form of oligomers having a sharp ^{27}Al NMR peak at 62-63 ppm; and~~

~~d)~~ forming molecular sieve catalyst particles from the catalyst formulation slurry.

2. (Canceled)

3. (Currently Amended) The method of claim 1, wherein ~~aging is carried out~~ the provided solution or suspension is aged at a temperature and for a period of time such that at least 5 atom % of the aluminum atoms of the aluminum-containing precursor in the catalyst formulation slurry is in the form of oligomers having between 10 and 75 aluminum atoms per molecule.

4. (Currently Amended) The method of claim 3, wherein ~~aging is carried out~~ the provided solution or suspension is aged at a temperature and for a period of time such that at least 10 atom % of the aluminum atoms of the aluminum-containing precursor in the catalyst formulation slurry is in the form of oligomers having between 10 and 75 aluminum atoms per molecule.

5. (Canceled)

6. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein at least 8 atom % of the aluminum atoms of the aluminum-containing precursor in the ~~catalyst formulation slurry~~ precursor is in the form of oligomers having a ~~sharp~~ ^{27}Al NMR peak at 62-63 ppm.

7. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein the inorganic oxide precursor comprises an aluminum oxide precursor and a zirconium oxide precursor.

8. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein the inorganic oxide precursor is an aluminum oxide or aluminum-zirconium oxide precursor.

9. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein the inorganic oxide precursor is selected from the group consisting of aluminum chlorohydrate and aluminum-zirconium chlorohydrate.

10-15. (Canceled)

16. (Currently Amended) The method of claim 1, wherein the catalyst formulation slurry further contains one or more of a material selected from the group consisting of a matrix material, ~~preferably~~ a clay, ~~more preferably~~ and kaolin clay.

17. (Original) The method of claim 1, wherein the molecular sieve is a metalloaluminophosphate molecular sieve.

18. (Original) The method of claim 1, wherein the molecular sieve is a silicoaluminophosphate molecular sieve.

19. (Original) The method of claim 18, wherein the molecular sieve is selected from SAPO-18, SAPO-34, SAPO-44, intergrown forms thereof, metal-containing forms thereof, and mixtures thereof.

20. (Currently Amended) The method of claim 1, wherein at least a portion of the molecular sieve ~~used in step b)~~ is provided in the form of uncalcined molecular sieve catalyst particles.

21. (Currently Amended) The method of ~~claim 2~~ claim 1, wherein the catalyst formulation slurry ~~prepared in step b)~~ has a viscosity of from 1.0 to 10.0 Pa-s, ~~preferably of from 1.2 to 9.5 Pa-s,~~ when measured at a temperature between 23°C and 30 °C, using a Brookfield LV viscometer, with a #3 spindle at 10 rpm.

22. (Original) The method of claim 1, wherein forming the catalyst particles is performed by spray drying.

23. (Original) The method of claim 1, further comprising the step of calcining the molecular sieve catalyst particles.

24. (Currently Amended) A method of making molecular sieve catalyst particles, the method comprising the steps of:

a) ~~preparing~~ aging a solution or suspension of an aluminum-containing inorganic oxide precursor in a liquid medium at a temperature of from 0°C to 100°C so that at least 6 atom% of the aluminum in the precursor exhibits an ^{27}Al NMR peak at 62-63 ppm;

b) combining the aged solution or suspension of inorganic oxide precursor with a molecular sieve~~, and optionally other formulating agents,~~ to form a catalyst formulation slurry; and

c) ~~aging the suspension of inorganic oxide; and~~

~~d)~~ forming molecular sieve catalyst particles from the catalyst formulation slurry~~;~~

~~wherein said aging is carried out at a temperature and for a duration such that the catalyst formulation slurry has a Relative Binding Efficiency between 1.02 and 1.25~~.

25. (Original) The method of claim 24, wherein the liquid medium is water.

26. (Canceled)

27. (Original) The method of claim 25, wherein the inorganic oxide precursor comprises an aluminum oxide precursor and a zirconium oxide precursor.

28. (Original) The method of claim 25, wherein the inorganic oxide precursor is an aluminum oxide or aluminum-zirconium oxide precursor.

29. (Original) The method of claim 25, wherein the inorganic oxide precursor is selected from the group consisting of aluminum chlorohydrate and aluminum-zirconium chlorohydrate.

30. (Currently Amended) The method of claim 25, wherein aging ~~in step c)~~ takes place by maintaining the catalyst formulation slurry at a temperature of from 0°C to 100°C for a period of at least 2 hours~~, preferably for a period of at least 4 hours~~.

31. (Original) The method of claim 30, wherein the catalyst formulation slurry is maintained at a temperature of from 15°C to 80°C.

32-34. (Canceled).

35. (Currently Amended) The method of claim 32, wherein the solution or suspension of inorganic oxide precursor is ~~maintained~~ aged at a temperature of from 15°C to 50°C for a period of not more than 4 hours.

36. (Currently Amended) The method of claim 25, wherein the catalyst formulation slurry further contains one or more of a material selected from the group consisting of a matrix material, ~~preferably~~ a clay, ~~more preferably~~ and kaolin clay.

37. (Original) The method of claim 25, wherein the molecular sieve is a metalloaluminophosphate molecular sieve.

38. (Original) The method of claim 25, wherein the molecular sieve is a silicoaluminophosphate molecular sieve.

39. (Original) The method of claim 38, wherein the molecular sieve is selected from SAPO-18, SAPO-34, SAPO-44, intergrown forms thereof, metal-containing forms thereof, and mixtures thereof.

40. (Currently Amended) The method of claim 25, wherein at least a portion of the molecular sieve ~~used in step b)~~ is provided in the form of uncalcined molecular sieve catalyst particles.

41. (Currently Amended) The method of claim 25, wherein the catalyst formulation slurry ~~prepared in step b)~~ has a viscosity of from 1.0 to 10.0 Pa-s, ~~preferably of from 1.2 to 9.5 Pa-s,~~ when measured at a temperature between 23°C and 30 °C, using a Brookfield LV viscometer, with a #3 spindle at 10 rpm.

42. (Original) The method of claim 24, wherein forming the catalyst particles is performed by spray drying.

43. (Original) The method of claim 24, further comprising the step of calcining the molecular sieve catalyst particles.

44-103. (Canceled)

104. (New) The method of claim 1, wherein the provided solution or suspension is further analyzed by ^{27}Al NMR spectroscopy to determine the atom% of the aluminum in the precursor.

105. (New) The method of claim 24, wherein the aged solution or suspension is further analyzed by ^{27}Al NMR spectroscopy to determine the atom% of the aluminum in the precursor.